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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,639	12/19/2001	Sung-Muk Lim	9903-44	1485

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EXAMINER

TRAIL, ALLYSON NEEL

ART UNIT PAPER NUMBER

2876

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/027,639	<b>Applicant(s)</b> LIM ET AL.	
	<b>Examiner</b> Allyson N Trail	<b>Art Unit</b> 2876	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Amendment***

1. Receipt is acknowledged of the amendment filed January 16, 2004.

### ***Priority***

2. The present application claims priority from Korean Patent Application No. 2001-2569, filed January 17, 2001.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-7, 25, and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Iwakiri et al (6,377,866).

Iwakiri et al teaches the following in regards to claims 1, 7, and 25:

Figure 1 shows the following:

A reference character set is inputted via the keyboard 2a. The reference character set is then shown on the screen 2b and the character set information is sent to the information processing device 1. As seen on the screen 2b, the character set may include a barcode or letters. The semiconductor wafer 10 is placed on a turntable 4. The laser head 21, which is connected to the engraving device 2, engraves the markings onto the wafer 10. The turntable spins to allow the reading camera 31, to read the engraved markings off of the wafer. The image read with the reading device appears on the display screen 3a and is also sent to the information processing device for comparison. In this method the features of the markings are extracted and the features produce character data (as seen on the screen 3a).

Iwakiri et al teaches the following in regards to claims 2 and 26:

Figure 2 shows a block diagram disclosing steps of determining if the marking is defective and classifying it as so. The steps include comparing the character data to the reference character set.

Iwakiri et al teaches the following in regards to claims 3 and 4:

As discussed above, the character set is inputted directly using a keyboard.

Iwakiri et al teaches the following in regards to claims 5 and 6:

"Engraving information for engraving the identification mark is inputted into the engraving device body 2 via a keyboard 2a, a computer mouse (not shown) or the like." (Col. 3, lines 1-3). As shown in figure 1, the engraving information is shown as barcode.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 8, 15-22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwakiri et al (6,377,866) in view of Schemmel et al (5,943,551).

Iwakiri et al's teaches are discussed above. Iwakiri et al fails to teach an optical character recognition unit configured to recognize the character images.

Schemmel et al teaches the following in regards to claim 18:

"An apparatus and method for detecting defects on silicon dies on a silicon wafer (16) comprising an image acquisition system (10) and a computer (32) that determines a statistical die model by analyzing a random selection of dies (42) within a die matrix (37) and compares the statistical die model to matrices of silicon dies (38) to determine which silicon dies (38) have surface defects, is disclosed." (Abstract).

"The image acquisition system can further include a high resolution microscope for manually inspecting silicon dies, if desired. The image acquisition system of the present invention can also include an object character recognition (OCR), a Bar code reader or other system that provides the computer with information about the silicon wafer. The computer of the present invention can be connected to a display unit that displays the die images acquired by the image acquisition system." (Col. 2, lines 20-28).

The limitations of claims 16, 17, and 19-24 are taught above by Iwakiri et al.

In view of Schemmel et al's teachings it would have been obvious to one of ordinary skill in the art at the time the invention was made to an optical character recognition unit to recognize the character image. The method of optical character recognition and capturing an image of characters using an image capturing device are art recognized functional equivalences of each other. While Iwakiri et al uses a camera to recognize the character image, an OCR unit would cut down on the processing time of recognizing the image.

7. Claims 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwakiri et al (6,377,866) in combination with Schemmel et al (5,943,551) and in further view of Akamatsu (5,768,290).

Iwakiri et al's teachings in combination with Schemmel et al's teachings are discussed above. The combination however fails to teach testing external terminals of the semiconductor products.

Akamatsu teaches the following in regards to claim 9:

"When testing at the wafer level is completed and the step for carrying out a fuse program to determine a pass/failure is completed, the semiconductor integrated circuit devices on the wafer are separated into chips in a dicing step. The semiconductor integrated circuit device formed as a chip is packaged (molded) in a mold step S3. Following completion of mold step S3, final testing for each individual semiconductor integrated circuit device is carried out (step S4). In this final test step S4, a signal is input/output via an external pin terminal for each semiconductor integrated circuit device

to carry out a function test similar to that carried out at the wafer level with respect to each input/output terminal (a pin terminal is electrically connected to respective internal signal input/output pads: when non-defective)." (Col. 2, lines 19-32).

The limitations of claims 10-14 are taught above by Iwakiri et al.

In view of Akamatsu's teachings it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Akamatsu with the combination of the teachings by Iwakiri et al and Schemmel et al. The combination of Iwakiri et al and Schemmel et al's teachings teach a method of detecting defective markings on a semiconductor wafer. The purpose is to classify defective semiconductors in order to avoid dispensing the defective semiconductors to the public. Akamatsu teaches testing the actual semiconductor wafer and not the identifying marking that is on the wafer. One would be motivated to also test the actual semiconductor before dispensing the semiconductor to the public along with testing the identifying marking which is present on the surface of the wafer. It is clear that the teachings of both Iwakiri et al and Schemmel et al are aimed at dispensing a working and functioning semiconductor and therefore testing the actual semiconductor would be an obvious step before dispensing the product.

### ***Response to Arguments***

8. Applicant's arguments filed January 16, 2004 have been fully considered but they are not persuasive to overcome the rejection of claims 1-7, 25, and 26 as being anticipated by Iwakiri et al (6,377,866). Claims 8, and 15-24 are now rejected by the combination of Iwakiri et al and Schemmel et al and claims 9-14 are now rejected by the

combination of Iwakiri et al, Schemmel et al and Akamatsu. It is believed by the examiner that Schemmel et al teaches more clearly the OCR unit which is described in the claimed invention. The examiner respectfully disagrees that Iwakiri et al fails to teach recognizing characters. As figure 1 shows, the reading device recognizes the engraved marking as characters. The characters are displayed on the screen and therefore they must be recognized by the reading device.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Schemmel et al (6,175,646), Meder (2001/0033689), Spencer (4,514,799), Matsuzaki et al (2004/0051549), and Nishizawa et al (2003/0209793).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Allyson N. Trail* whose telephone number is (571) 272-2406. The examiner can normally be reached between the hours of 7:30AM to 4:00PM Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee, can be reached on (571) 272-2398. The fax phone number for this Group is (703) 872-9306.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [[allyson.trail@uspto.gov](mailto:allyson.trail@uspto.gov)].

*All Internet e-mail communications will be made of record in the application file.*  
*PTO employees do not engage in Internet communications where there exists a*



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*possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.*

Allyson N. Trail  
Patent Examiner  
Art Unit 2876  
April 15, 2004

*Jared J. Fureman*  
**JARED J. FUREMAN**  
**PRIMARY EXAMINER**